CLAIMS

1. A handpiece, comprising:

a handpiece assembly including a handpiece housing and a cooling fluidic medium valve member; and

an electrode assembly coupled to the handpiece housing, the electrode assembly including a least one RF electrode that is capacitively coupled to a skin surface when at least a portion of the RF electrode is in contact with the skin surface.

2. The handpiece of claim 1, further comprising:

a fluid delivery member coupled to the cooling fluidic medium valve member, wherein the fluid delivery member is configured to provide an atomizing delivery of a cooling fluidic medium to the RF electrode.

3. The handpiece of claim 2, wherein the fluid delivery member is positioned in the handpiece housing.

4. The handpiece of claim 2, wherein the fluid delivery member is positioned in the electrode assembly.

5. The handpiece of claim 2, wherein the fluid delivery member includes a nozzle.

6. The handpiece of claim 2, wherein the fluid delivery member is configured to deliver a controllable amount of cooling fluidic medium to the RF electrode.

7. The handpiece of claim 2, wherein the fluid delivery member is configured to controllably deliver the cooling fluidic medium to a back surface of the RF electrode.

8. The handpiece of claim 2, wherein the fluid delivery member is configured to controllably deliver fluid to a backside of the RF electrode to evaporatively cool the RF electrode and conductively cool a skin surface in contact with the front side of the RF electrode.

9. The handpiece of claim 2, wherein the fluid delivery member is configured to controllably deliver a cooling fluidic medium to a back surface of the RF electrode at substantially any orientation of the front surface of the RF electrode relative to a direction of gravity.

10. The handpiece of claim 1, wherein the electrode assembly is sufficiently sealed to minimize flow of a cooling fluidic medium from a back surface of the RF electrode to a skin surface in contact with a front surface of the RF electrode.

11. The handpiece of claim 1, wherein the electrode assembly includes a vent.

12. The handpiece of claim 1, wherein the cooling fluidic medium valve member is configured to provide a pulsed delivery of a cooling fluidic medium.

13. The handpiece of claim 1, wherein the cooling fluidic medium valve member includes a solenoid valve.

14. The handpiece of claim 1, wherein the RF electrode includes a conductive portion and a dielectric portion.

15. The handpiece of claim 14, wherein the conductive portion includes metal.

16. The handpiece of claim 14, wherein the conductive portion includes copper.

17. The handpiece of claim 14, wherein the dielectric portion includes polyimide.

18. The handpiece of claim 14, wherein the RF electrode includes a copper polyimide composite material.

19. The handpiece of claim 1, further comprising:
leads coupled to the RF electrode.

20. The handpiece of claim 1, wherein the RF electrode includes a flex circuit.

21. The handpiece of claim 20, wherein the flex circuit is configured to isolate flow of a cooling fluidic medium from a back surface of the RF electrode to a front surface of the RF electrode.

22. The handpiece of claim 20, wherein the flex circuit is configured to create a reservoir for a cooling fluidic medium that gathers at a back surface of the RF electrode.

23. The handpiece of claim 20, wherein the flex circuit includes trace components.

24. The handpiece of claim 20, wherein the flex circuit include a force sensor coupled to the flex circuit.

25. The handpiece of claim 20, wherein the flex circuit includes a thermal sensor.

26. The handpiece of claim 20, wherein the flex circuit includes a dielectric that forms a portion of the RF electrode.

27. The handpiece of claim 1, further comprising:
a force sensor coupled to the RF electrode.

28. The handpiece of claim 27, wherein the force sensor is configured to detect an amount of force applied by the RF electrode against a surface.

29. The handpiece of claim 27, wherein the force sensor is configured to zero out gravity effects of the weight of the electrode assembly.

30. The handpiece of claim 27, wherein the force sensor is configured to zero out gravity effects of the weight of the electrode assembly in any orientation of a front surface of the RF electrode relative to a direction of gravity.

31. The handpiece of claim 27, wherein the force sensor is configured to provide an indication of RF electrode contact with a skin surface.

32. The handpiece of claim 27, wherein the force sensor is configured to provide a signal indicating that a force applied by the RF electrode to a contacted skin surface is below a minimum threshold.

33. The handpiece of claim 27, wherein the force sensor is configured to provide a signal indicating that a force applied by the RF electrode to a contacted skin surface is above a maximum threshold.

34. The handpiece of claim 27, further comprising:

a tare button coupled to the force sensor.

35. The handpiece of claim 1, wherein the RF electrode is spring loaded.

36. The handpiece of claim 35, wherein the spring is pre-loaded.

37. The handpiece of claim 35, wherein the spring is configured to bias the RF electrode in a direction toward the handpiece housing.

38. The handpiece of claim 1, further comprising:
a shroud coupled to the handpiece.

39. The handpiece of claim 1, further comprising:
a RF electrode identifier.

40. The handpiece of claim 1, wherein the RF electrode includes a conductive portion with a dielectric positioned around at least a portion of a periphery of the conductive portion.

41. The handpiece of claim 1, wherein the RF electrode includes a conductive portion with a dielectric positioned around an entirety of a periphery of the conductive portion.

42. The handpiece of claim 1, wherein the electrode assembly includes a cooling fluidic medium channel with an inlet and an outlet.

43. The handpiece of claim 42, wherein the outlet of the cooling fluidic medium channel has a smaller cross-sectional area than a cross-sectional area of the inlet.

44. The handpiece of claim 1, wherein the electrode assembly is moveable within at least a portion of the handpiece housing.

45. The handpiece of claim 1, wherein the electrode assembly is slideably moveable within at least a portion of the handpiece housing.

46. The handpiece of claim 1, wherein the electrode assembly is rotatably moveable relative to the handpiece housing.

47. The handpiece of claim 1, wherein the RF electrode is rotatably positioned in the electrode assembly.

48. The handpiece of claim 1, wherein the electrode assembly is coupled to the handpiece housing in a stationary position.

49. A handpiece, comprising:

a handpiece assembly including a handpiece housing and a cooling fluidic medium valve member with an inlet and an outlet; and

an electrode assembly removably coupled to the handpiece housing, the electrode assembly including a least one RF electrode with a front surface and a back surface, wherein the RF electrode is capacitively coupled to a skin surface when at least a portion of the RF electrode is in contact with the skin surface.

50. The handpiece of claim 49, further comprising:

a fluid delivery member coupled to the cooling fluidic medium valve member, wherein the fluid delivery member is configured to provide an atomizing delivery of a cooling fluidic medium to the RF electrode.

51. The handpiece of claim 50, wherein the fluid delivery member is positioned in the handpiece housing.

52. The handpiece of claim 50, wherein the fluid delivery member is positioned in the electrode assembly.

53. The handpiece of claim 50, wherein the fluid delivery member includes a nozzle.

54. The handpiece of claim 50, wherein the fluid delivery member is configured to deliver a controllable amount of cooling fluidic medium to the RF electrode.

55. The handpiece of claim 50, wherein the fluid delivery member is configured to controllably deliver the cooling fluidic medium to the back surface of the RF electrode.

56. The handpiece of claim 50, wherein the fluid delivery member is configured to controllably deliver fluid to a backside of the RF electrode to evaporatively cool the RF electrode and conductively cool a skin surface in contact with the front side of the RF electrode.

57. The handpiece of claim 50, wherein the fluid delivery member is configured to controllably deliver a cooling fluidic medium to the back surface of the RF electrode at substantially any orientation of the front surface of the RF electrode relative to a direction of gravity.

58. The handpiece of claim 49, wherein the electrode assembly is sufficiently sealed to minimize flow of a cooling fluidic medium from the back surface of the RF electrode to a skin surface in contact with the front surface of the RF electrode.

59. The handpiece of claim 49, wherein the electrode assembly includes a vent.

60. The handpiece of claim 49, wherein the cooling fluidic medium valve member is configured to provide a pulsed delivery of a cooling fluidic medium.

61. The handpiece of claim 49, wherein the cooling fluidic medium valve member includes a solenoid valve.

62. The handpiece of claim 50, wherein the fluid delivery member is configured to deliver a sufficient amount of cooling fluidic medium to controllably maintain the back surface of the RF electrode at a desired temperature.

63. The handpiece of claim 50, wherein the fluid delivery member is configured to controllably deliver a sufficient of cooling fluidic medium to the back surface of the RF electrode and maintain a substantially uniform temperature of the front surface of the RF electrode.

64. The handpiece of claim 49, further comprising:
a thermal sensor coupled to the RF electrode.

65. The handpiece of claim 49, further comprising:
a plurality of thermal sensors coupled to the RF electrode.

66. The handpiece of claim 49, further comprising:
four thermal sensors coupled to the RF electrode.

67. The handpiece of claim 64, wherein the sensor is positioned at the back surface of the RF electrode.

68. The handpiece of claim 64, wherein the sensor is electrically isolated from the RF electrode.

69. The handpiece of claim 64, wherein the sensor is selected from a thermocouple, thermistor, infrared photo-emitter and a thermally sensitive diode.

70. The handpiece of claim 49, wherein the outlet of the cooling fluidic medium valve member is distanced from the back surface of the RF electrode.

71. The handpiece of claim 49, wherein a geometry and a positioning of the fluid delivery member are selected to provide a substantially uniform distribution of fluid on the back surface of the RF electrode.

72. The handpiece of claim 49, wherein the RF electrode has a thickness in the range of 0.010 to 1.0 mm.

73. A handpiece, comprising:

a handpiece assembly including a handpiece housing;

an insert at least partially positionable in the handpiece housing;

an RF electrode coupled to the insert, the RF electrode including a back surface facing the handpiece housing and an opposing front surface; and

a cooling fluidic medium dispensing assembly coupled to the handpiece housing and the insert.

74. The handpiece of claim 73, wherein the cooling fluidic medium dispensing assembly includes a fluid delivery member coupled to a cooling fluidic medium valve member.

75. The handpiece of claim 74, wherein the cooling fluidic medium valve member is positioned in the handpiece housing.

76. The handpiece of claim 74, wherein the cooling fluidic medium valve member is positioned in the electrode assembly.

77. The handpiece of claim 74, wherein the fluid delivery member is positioned in the handpiece housing.

78. The handpiece of claim 74, wherein the fluid delivery member is positioned in the insert.

79. The handpiece of claim 74, wherein the fluid delivery member includes a nozzle.

80. The handpiece of claim 74, wherein the fluid delivery member is configured to deliver a controllable amount of cooling fluidic medium to the RF electrode.

81. The handpiece of claim 74, wherein the fluid delivery member is configured to controllably deliver a cooling fluidic medium to the back surface of the RF electrode.

82. The handpiece of claim 74, wherein the fluid delivery member is configured to controllably deliver fluid to a backside of the RF electrode to evaporatively cool the RF electrode and conductively cool a skin surface in contact with the front side of the RF electrode.

83. The handpiece of claim 74, wherein the fluid delivery member is configured to controllably deliver a cooling fluidic medium to the back surface of the RF electrode at substantially any orientation of the front surface of the RF electrode relative to a direction of gravity.

84. The handpiece of claim 74, wherein the RF electrode is sufficiently sealed to minimize flow of a cooling fluidic medium from the back surface of the RF electrode to a skin surface in contact with the front surface of the RF electrode.

85. The handpiece of claim 53, wherein the insert includes a vent.

86. The handpiece of claim 74, wherein the cooling fluidic medium valve member is configured to provide a pulsed delivery of a cooling fluidic medium.

87. The handpiece of claim 74, wherein the cooling fluidic medium valve member includes a solenoid valve.

88. The handpiece of claim 73, wherein the front surface of the RF electrode is configured to conductively cool a skin surface in contact with the front surface of the RF electrode at substantially any orientation of the front surface of the RF electrode relative to a direction of gravity.

89. The handpiece of claim 74, wherein the front surface of the RF electrode and the cooling fluidic medium delivery member are configured to conductively cool a skin surface in contact with the front surface of the RF electrode at substantially any orientation of the front surface of the RF electrode relative to a direction of gravity.

90. The handpiece of claim 73, wherein the RF electrode includes a conductive portion and a dielectric.

91. The handpiece of claim 73, wherein the RF electrode includes a conductive portion with a dielectric positioned around at least a portion of a periphery of the conductive portion.

92. The handpiece of claim 73, wherein the RF electrode includes a conductive portion with a dielectric positioned around an entirety of a periphery of the conductive portion.

93. The handpiece of claim 73, wherein the insert is removably coupled to the handpiece housing.

94. The handpiece of claim 93, further comprising:
a non-volatile memory coupled to the insert.

95. The handpiece of claim 94, wherein the non-volatile memory is an EPROM.

96. The handpiece of claim 73, further comprising:
a non-volatile memory coupled to the handpiece housing.

97. The handpiece of claim 96, wherein the non-volatile memory is an EPROM.

98. The handpiece of claim 73, wherein the handpiece housing includes a microprocessor.

99. The handpiece of claim 94, wherein the non-volatile memory provides control of current delivered to the RF electrode.

100. The handpiece of claim 94, wherein the non-volatile memory provides control of duty cycle of the cooling fluidic medium delivery member.

101. The handpiece of claim 94, wherein the non-volatile memory provides control of energy delivery duration time from the RF electrode.

102. The handpiece of claim 94, wherein the non-volatile memory controls the temperature of the front surface of the RF electrode relative to a target temperature.

103. The handpiece of claim 94, wherein the non-volatile memory provides a maximum number of firings of the RF electrode.

104. The handpiece of claim 94, wherein the non-volatile memory provides a maximum allowed voltage deliverable by the RF electrode.

105. The handpiece of claim 94, wherein the non-volatile memory provides a history of RF electrode use.

106. The handpiece of claim 94, wherein the non-volatile memory is configured to provide a controllable duty cycle to the cooling fluidic medium delivery member for the delivery of cooling fluidic medium to the back surface of the RF electrode.

107. The handpiece of claim 94, wherein the non-volatile memory is configured to provide a controllable delivery rate of cooling fluidic medium delivered from the cooling fluidic medium delivery member to the back surface of the RF electrode.

108. The handpiece of claim 74, wherein the RF electrode and the fluid delivery member are configured to provide a uniform heat removal from the front surface of the RF electrode when the front surface of the RF electrode is applied to a skin surface.

109. The handpiece of claim 74, wherein the RF electrode and the fluid delivery member are configured to provide a uniform heat removal from that portion of the front surface of the RF electrode applied to a skin surface.

110. The handpiece of claim 74, wherein the RF electrode and the fluid delivery member are configured to provide a uniform heat removal from that portion of the front surface of the RF electrode applied to a skin surface at substantially any orientation of the from surface of the RF electrode relative to a direction of gravity.

111. The handpiece of claim 74, wherein the RF electrode and the fluid delivery member are configured to conductively cool a skin surface in contact with the front surface of the RF electrode.